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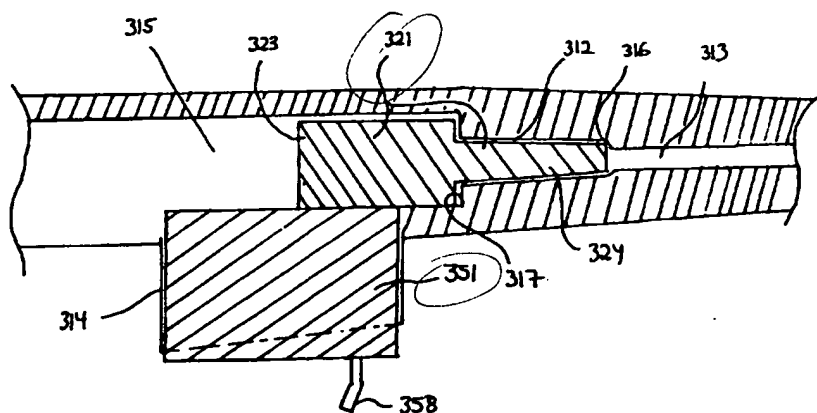
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(54) Title: A CHAMBER AND MAGAZINE LOCK FOR SECURITY WEAPONS AGAINST FIRING



(57) Abstract

A chamber and magazine lock for securing weapons against firing, which comprises locking rollers or similar, particularly semi- and full-automatic small arms of the type AG-3 and similar. The chamber and magazine lock comprises: i) a substantially elongate chamber lock (321) to be located towards and preferably in the weapon chamber (312), said chamber lock (321) being connected with a pin or similar arranged substantially perpendicular to the longitudinal axis of said chamber lock (321) and comprising a free end extending a distance away from the chamber lock, and ii) a locking means (351) with a length, viewed in the longitudinal axis of the weapon, substantially equal to the internal length of the magazine well (314), the upper surface of the locking means being provided with a bore or similar to establish an interlocking engagement with and accommodating the pin of the chamber lock (321), and the opposite lower end surface of the locking means (351) comprising means (358) to release or establish an interlocking engagement between the pin and the locking means (351).

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A chamber and magazine lock for security weapons against firing

- 5 The present invention concerns a chamber and magazine lock for securing weapons of the type presented in the precharacterizing clause of claim 1 and 8.

Technical background

10 In spite of the authorities' strong demands with regard to storage of weapons (small arms) and ammunition, numerous weapons are stored mounted and ready for firing, indeed without ammunition in the weapon. This is a particular problem with military weapons, and frequently theft of fully automatic and semi-automatic weapons are reported, such as with the AG-3 of the Norwegian defence.

15 In an attempt to secure such weapons against theft and intended or unintended firing for example by people under the influence of alcohol, it has been necessary to develop lockable weapon cabinets which makes removal of the weapon awkward in the absence of cutting and similar tools.

20 However, cabinets of this type have the disadvantage that they, as mentioned above, can be broken into with appropriate cutting tools without any substantial damage to the weapon itself. Another drawback is that cabinets of this type are only of use when the weapon is in the cabinet, either in a building or in a vehicle, and during transportation the weapon may - in a mounted condition - often be easy available to thieves and unintended firing.

25 Accordingly, there is a need for a means for securing weapons against firing when the weapon is transported separately and in a mounted condition.

30 A substantially rifle bolt-formed chamber lock for bolt rifles of the Mauser type is known, in which the rear end of the chamber lock exhibits radially extending projections, similar to the locking projections on the rifle bolt, which are interlocked with the corresponding recesses in the weapon chamber. Chamber locks of this type are, however, not applicable to weapons with locking rollers or similar locking means for the rifle bolt.

Object

The main object of the present invention is to provide a chamber lock for weapons of the type mentioned above, to secure such weapons against firing, and at the same time allowing the weapon to be transported in a mounded condition.

5

The invention

This object is achieved with a chamber lock according to the characterizing part of claim 1 and 8. Further beneficial features appear from the corresponding independent claims.

10 In accordance with the present invention, the chamber lock is formed in two parts, a first part - a chamber lock, located adjacent to and preferably extending into the chamber, said chamber lock being interlockable by means of a pin or similar to a second part - a locking means, which is inserted into the cartridge clip connector of the weapon (hereinafter referred to as "weapon magazine well" or "magazine well"). The chamber
15 lock may be formed like a cartridge, and in a mounted condition, the chamber lock preferably extends completely into the weapon chamber. In a first embodiment, the locking means exhibits an outer shape substantially similar to the internal shape of the weapon magazine well. In another embodiment, the locking means and at least a part of the chamber lock exhibit, in a mounted condition, an external shape allowing only a
20 movement of the same coaxially with the longitudinal axis of the magazine well.

In this way, it is extremely difficult to remove the chamber lock from the weapon without destroying or damaging the weapon to such an extent that the weapon can no longer be used for firing. As the locking means in said first embodiment is located adjacent to at least the forward and rearward end surfaces of the magazine well, viewed
25 in the aiming direction of the weapon, it will not be possible to withdraw the locking means with the chamber lock from the magazine well. Moreover, since only a small section of the rearward end of the chamber lock is visible from the cartridge case ejector port, it is very difficult to obtain access with a tool in an attempt to break, chisel or cut away some of the parts, or, for example cut the locking pin which connects the parts
30 together.

In order to make removal of the chamber and magazine lock in accordance with the invention by means of for example a hammer or similar even more difficult, the chamber lock and preferably at least the lower and upper surface of the locking means can be formed of tempered steel.

- 5 The forward end of the chamber lock, which in a preferred embodiment projects into the transition section to the weapon barrel, is preferably chamfered in such a way that no outer surface will be available to a hammer or chisel inserted into the weapon muzzle. Thus, an attempt to chisel the chamber lock in a direction rearwards from the muzzle and towards the cartridge ejector port will result in the tool slipping away from the forward
10 end of the chamber lock and to the chamber wall, which again may result in damage to the chamber wall. If one nevertheless should succeed in removing the chamber and magazine lock in in this manner, the damage on the chamber wall will make subsequent firing (after a first firing) impossible since the cartridge will jam with the chamber wall.

- The locking means is, in a first embodiment, provided with an external dimension
15 ensuring that the locking means together with the interconnected chamber lock cannot be withdrawn from the chamber and the magazine well. Accordingly, the longitudinal dimension of the locking means viewed in the aiming direction should correspond with the internal dimension of the magazine well, but in a preferred embodiment, the locking means also has a width corresponding to the internal width of the magazine well. In this
20 way it will be very difficult to obtain access with tools from the magazine well side of the weapon.

- In the second embodiment, the locking means and parts of the chamber lock in a mounted condition, together have an external cross sectional shape which substantially corresponds to the internal cross section shape of the magazine well, as will be apparent
25 in further detail from the example below. Specific examples of use of the second embodiment are in the Pistol Glock and the automatic weapon MP-5 H&K.

- It should be noted that even though the invention is primarily intended for use with Norwegian automatic weapons, minor adaptations to shape and dimensions will easily prepare the chamber and magazine lock in accordance with the invention for use with
30 other weapons of similar type, such as M16, Steyer AUG, AK47, AK 74 and FN FAL, including other weapons with similar mechanisms.

In the following, a preferred embodiment of the invention is described in further detail with reference to the drawings, in which similar numeric references are used on similar embodiments, and in which:

Figure 1 illustrates schematically, in partial cross section, a weapon of the type stated
5 above,

Figure 2a illustrates the chamber lock of the chamber and magazine lock in accordance with the invention to be located in the weapon chamber,

Figure 2b illustrates the locking means of the chamber and magazine lock in accordance with the invention for mounting in the weapon magazine well,

10 Figure 2c illustrates the chamber lock of Fig. 2a from the forward end in a somewhat enlarged view compared with Fig. 2a,

Figure 3 is a schematic partial section similar to Fig. 1, but where the chamber lock in accordance with the invention is interlocked in the weapon,

Figure 4 shows schematically a semi-automatic pistol in cross section viewed from the
15 side and provided with a chamber and magazine lock in accordance with the invention,

Figure 4a illustrates the chamber lock part alone of the chamber and magazine lock in Fig. 4, viewed from the rear to the pistol aiming direction in Fig. 4,

Figure 5 shows the chamber and magazine lock in the form of a variant of the embodiment illustrated in Fig. 4, mounted in another type of automatic weapon.

20 Figure 1 illustrates, in a partial section, a part of a weapon 111 of the type in question comprising a chamber 112, a barrel 113, a cartridge ejector port 115 and a magazine well 114.

Figure 2a illustrates a chamber lock 221, which in a preferred embodiment comprises a substantially conical forward section 224 which converges in the aiming direction of the
25 weapon, and a substantially cylindrical rear section 223 having a second diameter which is larger than the maximum diameter of the forward section 224. The forward section 224 preferably has an external dimension corresponding to the cartridge dimension for the weapon caliber in question, whereas the rear section 223 as mentioned above has a diameter larger than the largest diameter of the forward section 224, so that the forward
30 edge of the rear section 223 forms a shoulder in a mounted condition will rest against the shoulder 117 of the weapon chamber. As stated above, it is preferred to form the free end

of the forward section 224 of the chamber lock 221 with a bevel, as indicated with the dotted line 226 in Fig. 2a.

The rear section 223 of the chamber lock 221 may include, in a preferred embodiment, a radially extending bore or hole indicated by the dotted lines 227 to accomodate a substantially elongate locking pin 222. The bore 227 may partly extend into the rear section 223 or may extend through the rear section 223. The locking pin 222 can be arranged releasably in the bore 227, but it is preferred that the pin 222 is fixedly connected to the chamber lock 221 or constitutes an integrated part of the same, and when in use, the locking pin extends radially outwardly from the external surface of the rear section 223 of the chamber lock 221.

In order to allow for engagement with the locking means, as described in further detail below, the pin is provided with a groove, recess or similar 225 in the section projecting outwardly from the surface of the rear section 223 of the chamber lock. In a preferred embodiment the groove 225 is formed as a cylindrical constriction of the locking pin 222. Figure 2b illustrates in partial section a locking means 251 prior to being mounted in the weapon magazine well 114. In a preferred embodiment the locking means 251 is formed with external dimensions slightly less than the internal dimensions of the magazine well 114. In this way, it will become extremely difficult to remove the locking means from the magazine well. Viewed in a radial direction to the barrel, there is no space for tools to be inserted between the locking means and the internal wall of the magazine well.

The locking means can be constructed in similar way to padlocks, known *per se*, but with the loop of the padlock removed and replaced with said locking pin 222, as described above in conjunction with the chamber lock. The surface of the locking means is accordingly provided with only one bore or hole for accomodating said locking pin 222. Fig. 2b shows an example of one embodiment of the locking means, comprising a case 253, a bore or hole 254, and a cylinder lock or similar 257 operated by a key 258. A locking pin 255 is arranged inside the case 253, and is operated by a spring 256 connected to the cylinder lock 257 and extends perpendicular to and partially into the bore 254 to establish a locking engagement with, and to accomodate said locking pin 222

of the chamber lock 221. The locking means 251 have numerous variants, known *per se*, and the structure of the same is for that reason omitted here.

As illustrated in Fig. 2c, to establish the closest possible contact between the chamber lock 221 and the locking means 251, it is preferred that the lower surface 228 of the chamber lock 221, 223 is flat; or in other words the locking pin 222 extends perpendicular from flat surface 228 of the rear section 223 of the chamber lock extending in the aiming direction of the weapon. The upper surface 259 of the locking means 251 is similarly formed with a plane perpendicular to the axis of the locking pin 222 and the bore 254. In this way, it will become very difficult to obtain access between the chamber lock and the locking means with a tool in an attempt to separate the same.

Figure 3 shows the chamber and magazine lock in accordance with the invention arranged in a weapon as illustrated in Fig. 1. As is evident from the figure, the chamber lock 321 is arranged with the forward section 324 of the chamber lock located in the weapon cartridge chamber 312, whereas the rear section 323 of the chamber lock is located in the part of the weapon which normally accommodates the rifle bolt, whereby a substantially annular shoulder established at the transition between the first and second sections of the chamber lock is located adjacent the annular shoulder 317 which constitutes the entry point into the weapon chamber section 312. The locking means 351 is arranged in the weapon magazine well 314 and is fixedly connected with the chamber lock 321 by the locking pin (not illustrated). The chamber and magazine lock according to the invention is locked and unlocked from beneath by means of a key 358 or similar.

Other variants of the first embodiment of the chamber and magazine lock according to the invention are also conceivable. The locking means, instead of having an extending part, may be provided with an axially movable locking pin, movable from a lower unlocked position to an upper locked position by means of a key. Then, the rear end of the extended part can be provided with a corresponding radially extending bore or hole for accommodating the pin of the locking means.

Figure 4 illustrates another embodiment of the chamber and magazine lock according to the invention, mounted in a semi-automatic pistol. The chamber and magazine lock comprises a first locking means comprising a substantially longitudinal chamber lock 421 having a forward end located in the weapon cartridge chamber 412, and a rear end

extending down into the weapon magazine well 414. The lower section of the chamber lock 412 is fixedly connected with a first (magazine) locking part 451b having a width corresponding to the width of the internal section of the magazine well. A rear surface (viewed in the aiming direction) of the first magazine locking part 451b is in this
5 embodiment provided with a recess 454 in the form of a circular hole extending into the first magazine locking part 451b. A second locking means comprises a second magazine locking part 451a arranged in surface-to-surface contact with the first locking part 451b, whereby the forward part (viewed in the aiming direction of the weapon) of the second locking part 451a is provided with an adjustable and lockable pin 422 or similar for
10 engagement with the recess 454 in the first locking part 451b. As will be evident from the figure, the resulting chamber and magazine lock can be released from the weapon by means of a key 458 to withdraw the locking pin 422 out of engagement with the recess 454 and back into the second locking part 451a, whereupon the second locking part 451a can be removed from the magazine well 414, allowing then the chamber lock and the first
15 locking part (421,451b) to be removed.

Figure 4a and 4b illustrates schematically the respective parts of the chamber and magazine lock in Fig. 4 viewed towards their respective contact surfaces. Figure 4a illustrates the contact surface of the second magazine locking part 451a, which in a mounted condition faces a corresponding contact surface on the first magazine locking
20 part. An axially movable pin 422 is illustrated extending at an angle from the contact surface on the second magazine locking part 451a. A key 458 for operating the locking pin 422 is illustrated in the lower section of the second magazine locking part 451b, which in a mounted condition faces the corresponding contact surface of the second locking part in Fig. 4a. A circular recess 454 for accommodation of the locking pin 422 in
25 Fig. 4a is illustrated on the contact surface. The chamber lock 421 extends upwards from the upper section of the first locking part 451b and forwards (down into the paper plane) and into the cartridge chamber.

Figure 5 shows schematically a chamber and magazine lock similar to Fig. 4, but in a modified embodiment and mounted in an automatic weapon of the type MP-5 H&K. The
30 first locking part 551b extends, in this alternative, completely up into the upper part of the weapon chamber 512, and the chamber lock part 521 extends substantially

perpendicularly out from the same and into the weapon chamber 512. Functionality and shape of the remaining components are of a generally similar nature to the ones illustrated in Fig. 4, i.e., there is provided a recess 554 in the first locking part 551b and a locking pin 522 and a key in the second locking part 551a.

- 5 The forward end of the chamber lock part illustrated in Fig. 4 and 5 can be similar to the chamber lock in Fig. 1 to 3, in that it can be beveled to facilitate the removal of the chamber and magazine lock from the weapon.

The present invention does accordingly describe a novel and inventive chamber and magazine lock for weapons, particularly for full- and semi-automatic small arms such as
10 AG-3, MP-5 H&K, Pistol Glock and similar, which secures the weapon against firing, even during transportation. Attempts to remove the chamber and magazine lock in accordance with the invention should result in damage to the weapon to such an extent that it may no longer be used for firing. In practice, it is conceivable to store, deliver and carry all weapons with a chamber and magazine lock in accordance with the invention,
15 and the lock should only be removed only when the weapon is to be used, e.g. in training or at mobilization or similar.

Claims

1. A chamber and magazine lock for securing weapons against firing, particularly semi- and full-automatic small arms of the type AG-3 and similar,
characterized in that the lock comprises
- i) a substantially longitudinal chamber lock (221) to be located towards and preferably
5 in the weapon chamber (312), said chamber lock (221) being connected with a pin (222) or similar arranged substantially perpendicular to the longitudinal axis of said chamber lock (221) and comprising a free end extending away from the chamber lock, and
 - ii) a locking means (251) with a length, viewed in the longitudinal axis of the weapon, substantially similar to the internal length of the magazine well (114,314), the upper
10 surface of the locking means being provided with a bore or similar (254) to establish a interlocking engagement with and accomodating the pin (222) of said chamber lock (221), and the opposite lower end surface of the locking means (251) comprising means (258) to release or establish an interlocking engagement between the pin (222) and the locking means (251).
- 15 2. The lock of Claim 1,
characterized in that said chamber lock (321), when mounted in the weapon chamber part (312), extends from the chamber constriction (316) into the weapon barrel (313).
3. The lock of Claim 1 or 2,
20 **characterized** in that the forward end of the chamber lock (221) is beveled (226) to establish at least one surface arranged at an angle with the barrel.
4. The lock of any of Claims 1 to 3,
characterized in that the chamber lock (221) comprises a substantially cylindrical rear section (223) having a transverse dimension larger than the maximum diameter of
25 the chamber (312) and allowing for insertion of the chamber lock (221) to the weapon chamber through the weapon magazine well or cartridge ejector port, and a substantially conical forward section (224) having an external dimension substantially corresponding to the internal dimension of the weapon chamber (312).

5. The lock of any of Claims 1 to 4,
characterized in that the locking means (251) has a length, viewed perpendicular to the longitudinal weapon axis, which is slightly less than the internal length of the weapon magazine well.

5 6. The lock of any of Claims 1 to 5,
characterized in that the locking means (251) and/or the chamber lock (221) is constructed of tempered steel.

7. The lock of any of Claims 1 to 6,
characterized in that the chamber lock (221) and the locking pin (222) is formed
10 integrally as a single piece.

8. A chamber and magazine lock for securing weapons against firing, particularly semi- and full-automatic small arms of the type MP-5 H&K, Pistol Glock and similar,
characterized in that the lock comprises

i) a first locking means comprising a substantially longitudinal chamber lock (421,521)
15 to be located towards and preferably in the weapon chamber (412,512), and a first magazine locking part (451b) which is fixedly connected with the chamber lock (421) and is to be located inside the weapon magazine well (414,514), and

ii) a second locking means comprising a second magazine locking part (451a,551a) to be arranged in the weapon magazine well (414,514) together with said first magazine
20 locking part (451b,551b),

said first and second magazine locking parts (451a,551a) and (451b,551b) respectively, when mounted together having an external cross section substantially similar to the internal cross section of the magazine well (414,514), and said second and first magazine locking parts and second and first locking means being releasably connected to each
25 other via movable locking means (422,454,458,522,554,558) which can be locked and unlocked from beneath the weapon magazine well (414,514).

9. The lock of Claim 8,
characterized in that the movable locking means comprises a recess (454,554) in the rear section of the first magazine locking part (451b,551b), viewed in the aiming
30 direction, and an axially movable and lockable pin (422,522) arranged on the opposing surface of said second magazine locking part (451a,551a).

10. The lock of Claim 8 or 9,
c h a r a c t e r i z e d in that the forward end of the chamber lock (421,521) is beveled
to establish at least one surface arranged at an angle with the cross-section plane of the
barrel.

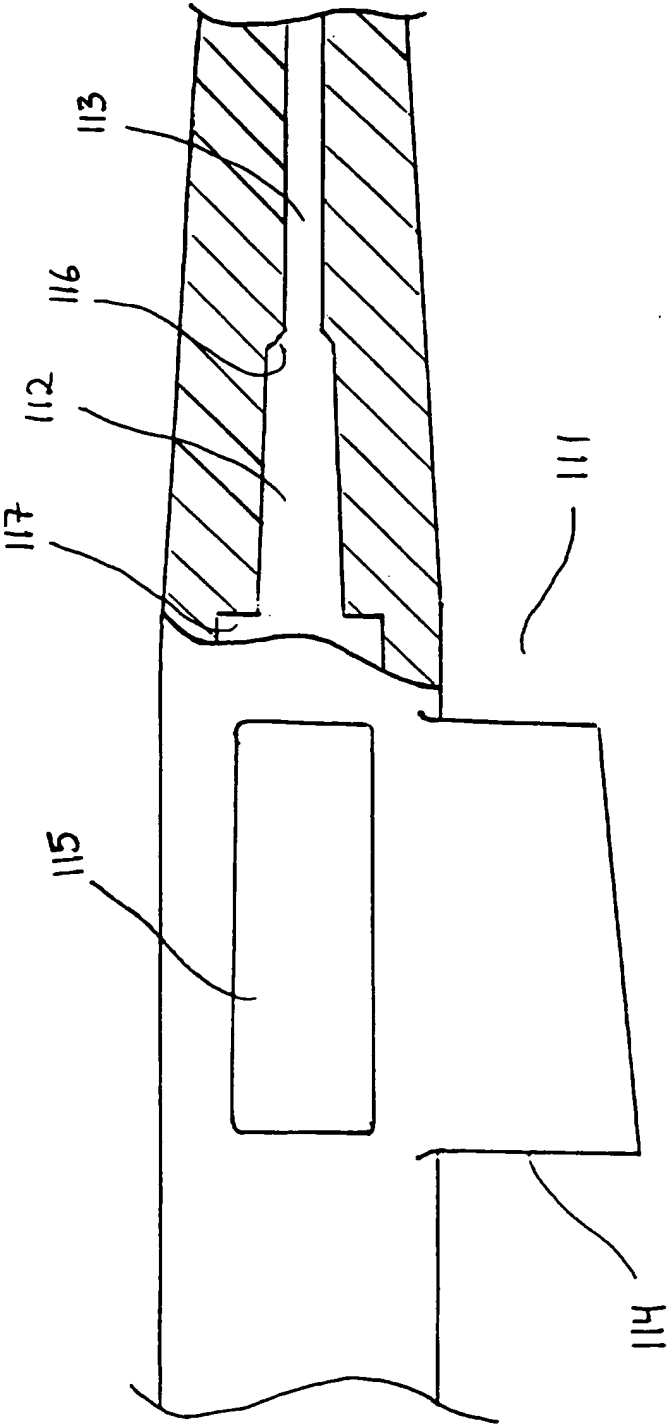
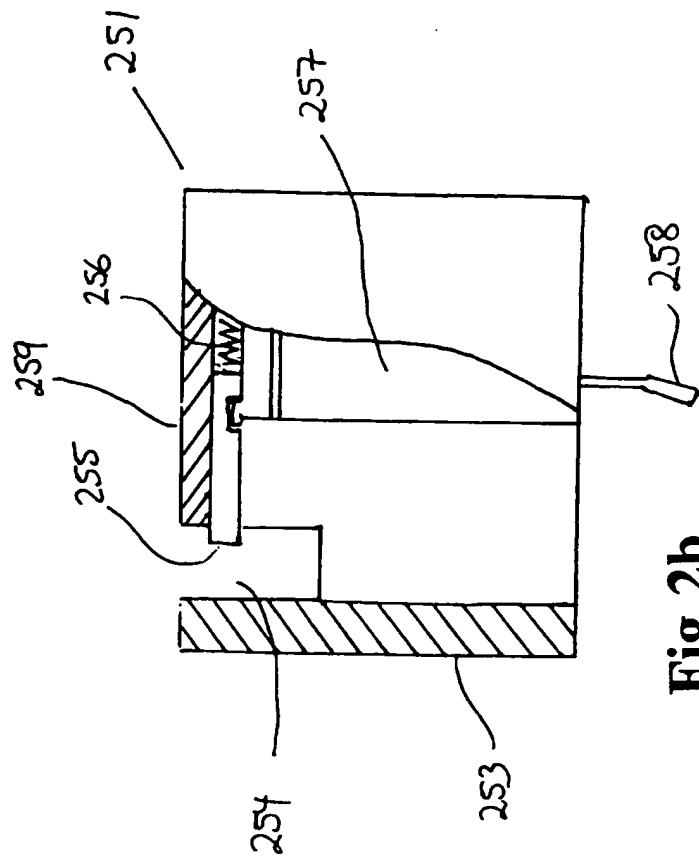
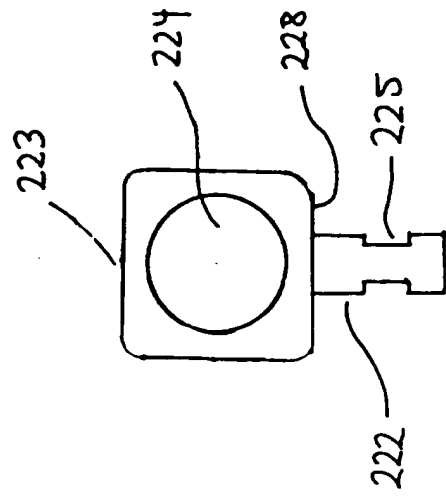
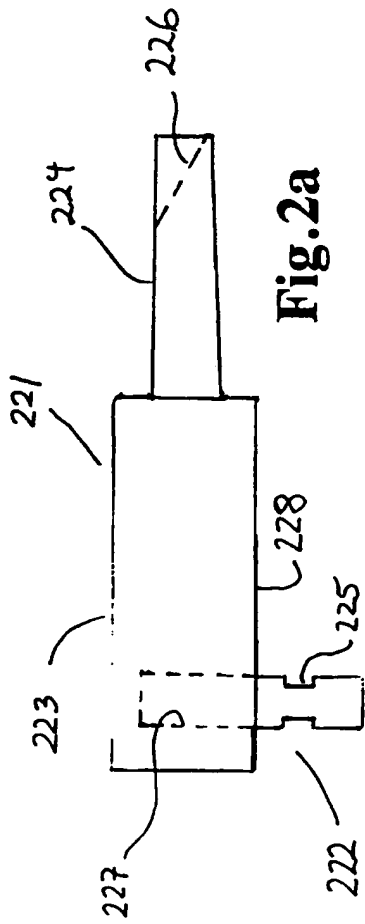


Fig.1

2/6



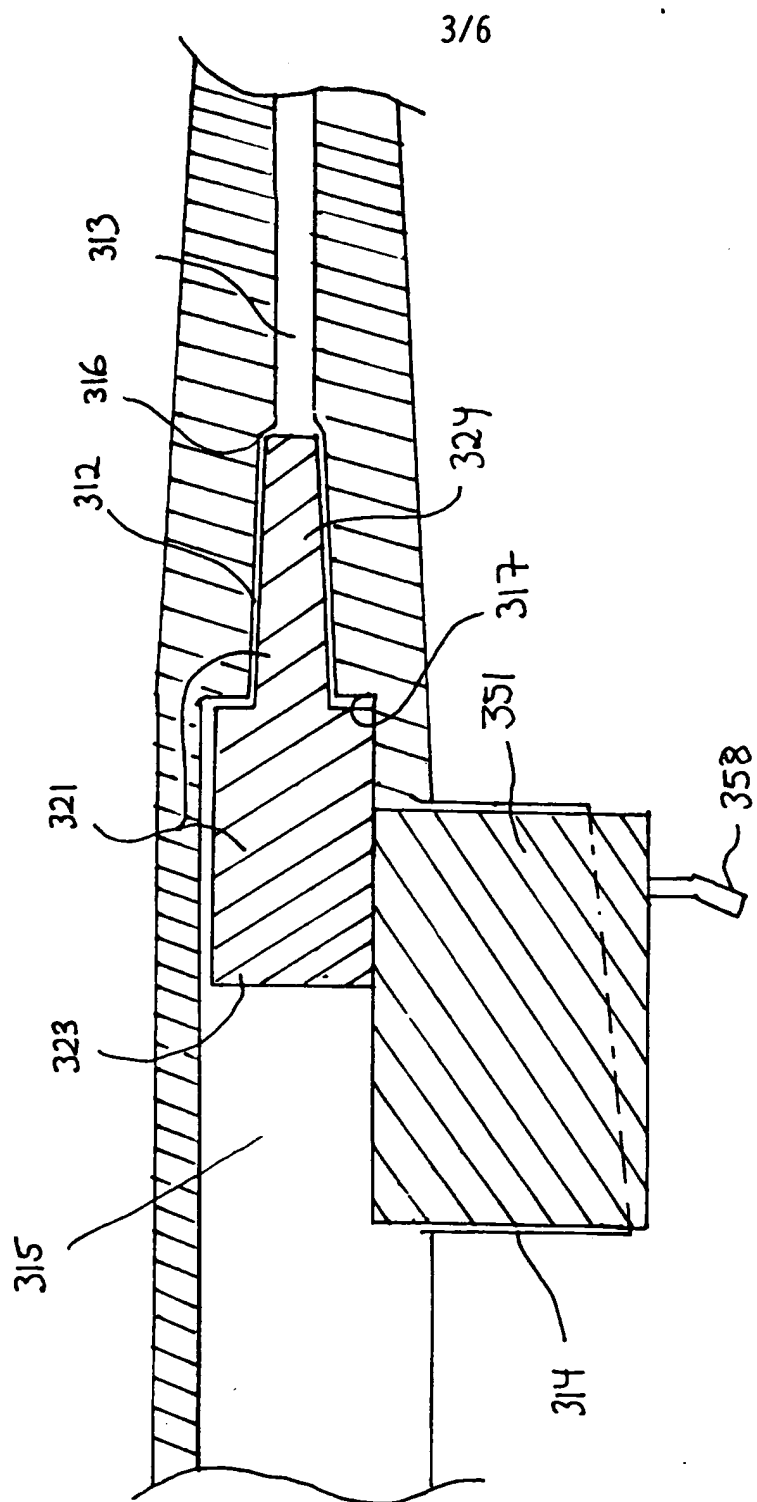


Fig.3

4/6

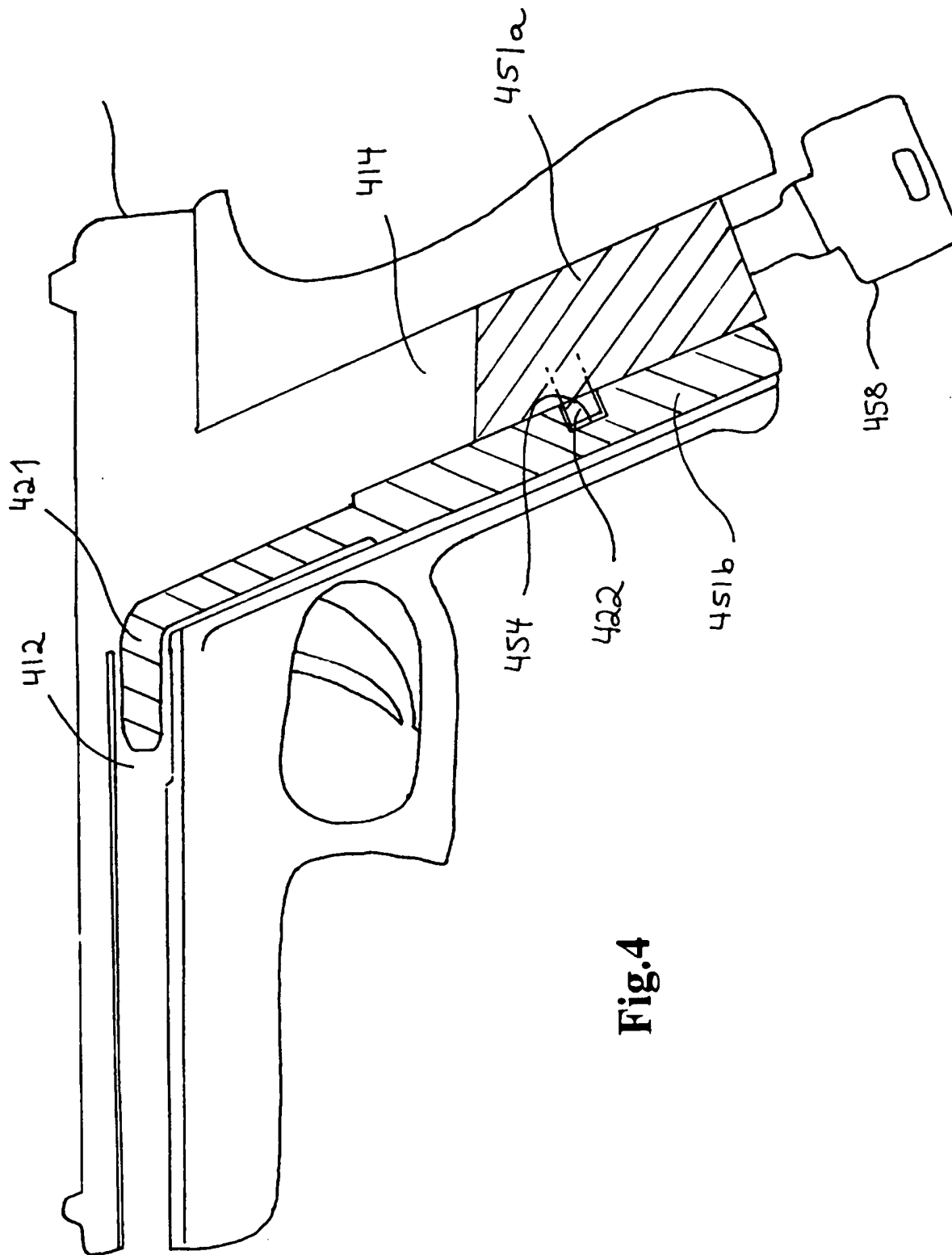


Fig.4

5/6

Fig.4a

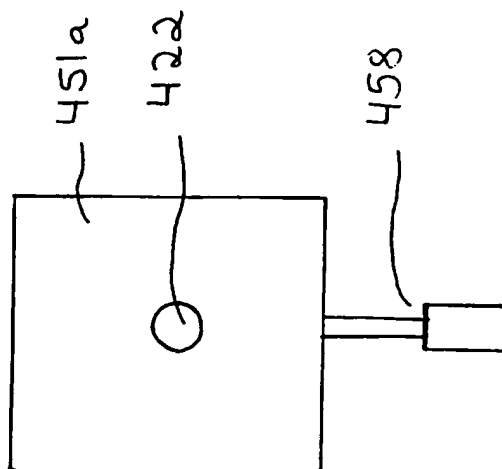
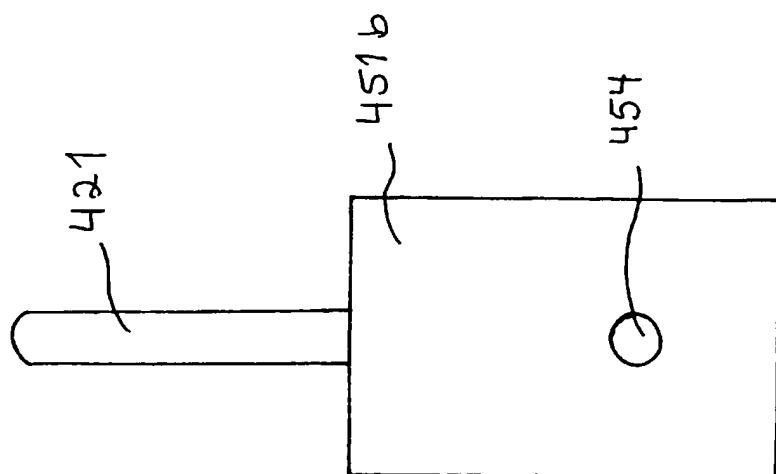


Fig.4b



6/6

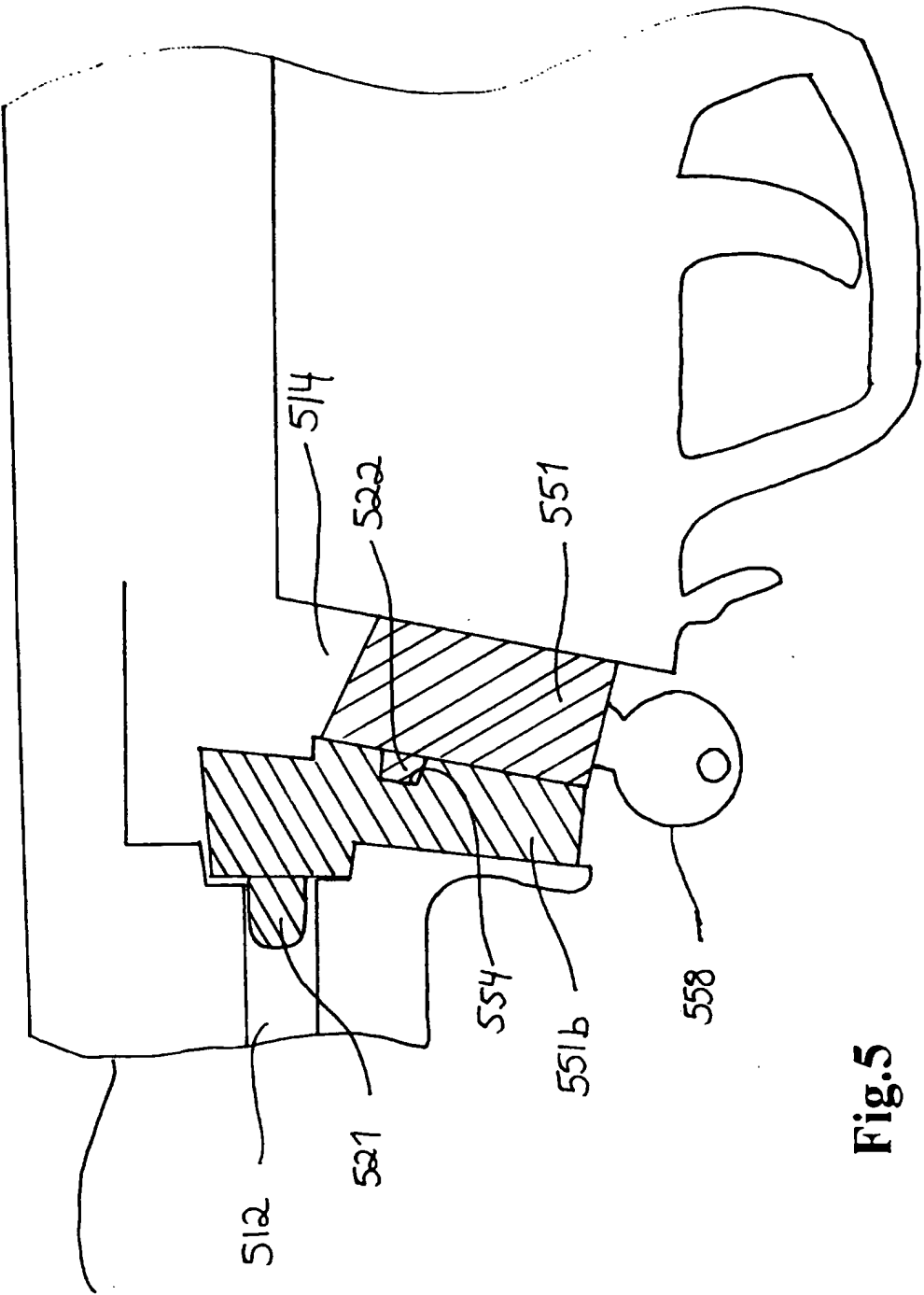


Fig.5

INTERNATIONAL SEARCH REPORT

International application No.

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A. CLASSIFICATION OF SUBJECT MATTER

IPC6: F41A 17/44, A41C 17/00

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C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 3089272 A (D.E MCKINLAY), 14 May 1963 (14.05.63), figure 13 --	1,2,5,6
A	WO 8809475 A1 (LYNGSLUND-JENSEN, HANNE), 1 December 1988 (01.12.88), figures 2,3 --	3,10
A	US 5331759 A (I.W. MARCEAU ET AL), 26 July 1994 (26.07.94), figures 1,3-4, abstract --	1,3,5
A	US 5241769 A (F. VON MULLER), 7 Sept 1993 (07.09.93), figures 1a-1d,2 --	1,5,9

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Date of the actual completion of the international search

3 July 1996

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4528765 A (D.A JOHNSON), 16 July 1985 (16.07.85), column 5, line 9 - line 14, figure 7 --	4
A	DE 4009372 A1 (CZECH, RUDOLF ET AL), 11 October 1990 (11.10.90), figure --	5,6
A	US 4619062 A (D.A. JOHNSON), 28 October 1986 (28.10.86), figure 7 --	8
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INTERNATIONAL SEARCH REPORT
Information on patent family members

01/04/96

International application No.
PCT/NO 96/00010

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US-A-	4619062	28/10/86	NONE		
US-A-	4761906	09/08/88	NONE		